Gridded National Soil Geographic Database (gNATSGO)

NRCS Complete Coverage Soils Database
What is gNATSGO?

**gNATSGO** – Gridded National Soil Survey Geographic Database

- “A composite database providing complete coverage of the best available USDA-NRCS soils information for all areas of the United States and Island Territories.”

- For some states we did not produce gNATSGO because they have no areas of ‘NOTCOM’ and no areas with Raster Soil Survey data. Instead, use gSSURGO for these states.

- Second version of gNATSGO produced in 2020
What is gNATSGO?

- Combines 3 USDA-NRCS soils databases into a single database
Combining Databases into gNATSGO

- STATSGO2
- SSURGO
- Raster Soil Survey

= gNATSGO
About USDA-NRCS Soils Databases

1. SSURGO

- Historic NRCS county-based flagship product
- Over 100 years of boots-on-the-ground data
- Typically published at a scale of 1:12,000 to 1:24,000

Click for more information about SSURGO
2. **STATSGO**

- General soil maps
- Minimal field data
- 1:1,000,000 scale in Alaska and 1:250,000 scale for all other areas of the United States and Island Territories

Click for more information about STATSGO2
3. **Raster Soil Survey (RSS)**
   - Next generation soil survey product
   - Gridded soil surveys developed with predictive digital soil mapping (DSM) techniques
   - Produced for areas with and without SSURGO data
   - As of 2020, published RSS only available for specific areas of Minnesota, North Dakota, and Vermont
     - Number of RSSs expected to increase in coming years
How gNATSGO Was Built

1. Started with SSURGO
2. Identified areas of SSURGO without soils information and then merged in STATSGO2 for those areas
3. Burned in published RSSs, replacing SSURGO or STATSGO2 information for those survey areas

Currently, gNATSGO consists mainly of STATSGO and SSURGO data due to limited availability of RSSs.
Start with Incomplete SSURGO
Fill SSURGO Gaps with STATSGO2
Burn in Raster Soil Survey when Available
What is in the gNATSGO database?

- Delivered as an ESRI file geodatabase
What is in the gNATSGO database?

- Soil map units are converted to 10-meter rasters for the state databases and a 30-meter raster for the CONUS database.

- Vectorized version of soil map units **NOT INCLUDED** in gNATSGO.
What is in the gNATSGO database?

- Standard soil attribute data delivered as a series of interrelated tables
What is in the gNATSGO database?

• Relationship classes that define relationships between tables
What is in the gNATSGO database?

- SAPOLYGON layer that shows the boundaries of the soil survey areas

A “Source” field can be used to determine if the data was derived from SSURGO, STATSGO2, or RSS.
How Do I Work with All the Tables?

Grab the gSSURGO Tools

- Free USDA-NRCS ArcGIS Desktop Toolbox
- Rapidly create thematic maps of soil properties and interpretations over large geographic areas
- Work on both State and Continental (CONUS) gNATSGO databases
- Replicate thematic map functionality of Web Soil Survey (WSS) and Soil Data Viewer (SDV)

NOTE – As of 2020, these tools do not work in ArcPro.

Download gSSURGO Toolbox
Download gSSURGO Toolbox User Guide
Download gSSURGO Mapping Quick Guide
Working with gNATSGO

gSSURGO Tools

- Most customers will only use the Create Soil Map tool.
- The tool replicates Soil Data Viewer and Web Soil Survey functionality.
- The tool allows customers to generate thematic maps of soil properties and interpretations.
Working with gNATSGO

gSSURGO Tools – Create Soil Map

1. Select the Mapunit Raster layer
2. Choose the Soil Data Viewer Attribute folder, which is used to categorize the specific attributes.
3. Choose the attribute for which a thematic map is desired
4. Choose aggregation method and other optional constraints. Suggest Dominant Condition for text data or Weighted Average for numeric data.
Working with gNATSGO

- Run tool to produce thematic map

  **NOTE**: When generating ratings of soil interpretations, the user must manually symbolize the output layer.
Working with gNATSGO

gSSURGO Tools – List Available Soil Maps

- Complimentary to the Create Soil Map tool
- Lists all possible soil maps, categorized by Soil Data Viewer folders
- Runs quickly
- Output can be copied and pasted into Microsoft Word
Will gNATSGO Be Updated Annually?

- The current plan is to create a new version of gNATSGO every year.
- We can not provide an exact date at this time, but a new version should be released after the new calendar year.
Contacts for Technical Assistance

To obtain technical information about the use of soils data, please contact the NRCS State Soil Scientist in your State or the Soils Hotline Staff at SoilHotline@lin.usda.gov.
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